



**Keystone Citizen Advisory Group**  
**Meeting No. 4**  
Coupeville Recreation Hall  
September 30, 2004 - 5:45-8:45 p.m.

---

## Meeting Summary

---

***Note:** This meeting summary represents notes from the Citizen Advisory Group (CAG) meeting, and is not a formal transcript or minutes. It is provided for the information of CAG members and other interested parties.*

---

## AGENDA

---

- I. Opening Remarks; Review of 8/26/04 Meeting Summary
- II. Review of Harbor/Vessel Scenarios
- III. Harbor Model Update
- IV. Vessels Update – Keystone Special and Out-of-Box Option
- V. Environmental
- VI. Ridership
- VII. Throughput
- VIII. Costs and Impacts
- IX. CAG Role in Final Report
- X. Port Townsend Project Update
- XI. Next Steps
- XII. Public Comment

---

## ATTENDEES

---

### **CAG Members**

- ✓ Nancy Conard
- ✓ Forest Shomer
- ✓ Tim McGuire
- ✓ TJ Brennan (Alternate)

### **WSDOT Representative**

- ✓ Paula Hammond

### **Facilitator**

- ✓ Penny Mabie, EnviroIssues

### **Project Team Members**

- ✓ Mike Thorne, WSF
- ✓ Bill Greene, WSF
- ✓ Dana Moreland, WSF
- ✓ Russ East, WSF
- ✓ Joy Goldenberg, WSF
- ✓ Laurens Zuidweg, WSF
- ✓ Captain Kelly Mitchell, WSF
- ✓ Celine Gihring, WSF
- ✓ Traci Brewer-Rogstad, WSF
- ✓ Bob Swope, CH2M Hill
- ✓ Roxanne Oynes, CH2M Hill
- ✓ Doug Playter, CH2M Hill
- ✓ Erin Pressentin, EnviroIssues
- ✓ Hadley Greene, EnviroIssues

## MEETING HANDOUTS

---

- Agenda
- Draft 8/26/04 CAG Meeting Summary
- PowerPoint Presentation
- Keystone Harbor Environmental Analysis Handout
- Keystone-Port Townsend Route Ridership Handout
- Keystone Harbor Costs and Impacts Analysis Handout
- Public Comment

## OPENING REMARKS

---

### ***Penny Mabie, EnviroIssues***

Penny Mabie, EnviroIssues, opened the meeting and introduced herself as facilitator for the Washington State Ferries' (WSF) Keystone Citizen Advisory Group (CAG) process. She noted that the next meeting for the CAG would be held in Port Townsend at the Pope Marine Building on October 13 from 5:00 to 8:00 p.m. The final meeting will be in Coupeville on October 28.

An alternate tug boat captain was appointed since the last CAG meeting. Alternate TJ Brennan was in attendance and had been given an overview of CAG materials prior to the meeting. He is a captain with Star Marine and will follow the CAG process along with Clark Jennison through its conclusion.

Penny asked if the CAG had any edits for the August 26 meeting summary. There were none so the summary will be finalized.

Penny reminded the CAG, audience, and presenters about the CAG meeting process. The public is welcome to attend and observe the CAG meeting proceedings; only CAG members may ask questions. Presenters will not answer questions posed by audience members. A general public comment period is held at the conclusion of each meeting.

## REVIEW OF HARBOR/VESSEL SCENARIOS

---

### ***Penny Mabie, EnviroIssues***

Penny explained that since the CAG meeting on August 26, harbor options and vessel selections had been fully developed into vessel/harbor scenarios. The vessel/harbor scenario matrix showed a new harbor option, Option 6: Existing Slip with Line Dolphins. Names have also been added to help navigate the growing amount of data. They are:

1. Existing Conditions
2. Existing Slip with Jetty Extension
3. Harbor Mouth Slip East Side Park Terminal
4. In Harbor Slip- State Park Terminal
5. West State Park Slip and Terminal

## 6. Existing Slip with Line Dolphins

The five vessel options were abbreviated for ease of reference:

- Maintain Steel Electrics (SE)
- New/Existing Issaquah 130 class vessels (130)
- Evergreen State or Sealth – Issaquah 100 class (100)
- “Keystone Special” – Same footprint as current Steel Electrics with new propulsion system (KS)
- “Out-of-the-Box” 100 Special (New Propulsion System - NP)

When the five vessel and six harbor options are combined, the harbor/vessel scenarios have named shortcuts shown in the matrix. NP-1 stands for the “Out-of-Box” 100 Special vessel in the existing conditions of Keystone Harbor, and so forth. The result is 28 different harbor/vessel scenarios and consequently, 28 different harbor layouts that are being analyzed. Each matrix cell corresponds to its applicable harbor layout.

| VESSEL OPTIONS                                                                | HARBOR OPTIONS         |                                       |                                               |                                       |                                      |                                     |
|-------------------------------------------------------------------------------|------------------------|---------------------------------------|-----------------------------------------------|---------------------------------------|--------------------------------------|-------------------------------------|
|                                                                               | 1. Existing Conditions | 2. Existing Slip with Jetty Extension | 3. Harbor Mouth Slip East State Park Terminal | 4. In Harbor Slip-State Park Terminal | 5. West State Park Slip and Terminal | 6. Existing Slip with Line Dolphins |
| Maintain Steel Electrics (59 cars)                                            | SE-1                   | SE-2                                  | SE-3                                          | SE-4                                  | SE-5                                 | SE-6                                |
| New/ Existing Issaquah 130 Class (133 cars)                                   |                        | 130-2                                 | 130-3                                         | 130-4                                 | 130-5                                | 130-6                               |
| Evergreen State or Sealth (Issaquah 100 Class - 87/90 cars)                   |                        | 100-2                                 | 100-3                                         | 100-4                                 | 100-5                                | 100-6                               |
| "Keystone Special" (Same Footprint as SEs with New Propulsion System 68 cars) | KS-1                   | KS-2                                  | KS-3                                          | KS-4                                  | KS-5                                 | KS-6                                |
| "Out-of-the-Box" - 100 Special (100 cars)                                     | NP-1                   | NP-2                                  | NP-3                                          | NP-4                                  | NP-5                                 | NP-6                                |

Dana Moreland, WSF Terminal Engineering, explained Option 6: Existing Slip with Line Dolphins. Option 6 is similar to today's configuration, but adds rows of line dolphins on the east and west sides of the harbor, and a retaining wall structure on the outer edge of those dolphins.

Benefits of Option 6 include minimization of land acquisition from state parks, and no jetty expansion beyond today's footprint. This option when combined with a shallow draft vessel, such as the Keystone Special, has a higher probability of being permitted than the other harbor options due to this limitation of environmental impacts. One drawback for the option is an unchanged current at the mouth of the harbor without a jetty expansion. Overall, maneuverability would remain unchanged entering the harbor, however dolphins would provide insurance against grounding a vessel.

As seen in harbor scenario 130-6, a retaining wall would take some of the beach area behind the dolphins. The retaining wall and fill behind provide an opportunity to increase parkland on the eastern edge of the harbor. Dredging is required for any of the Option 6 scenarios; less dredging is needed for a shallow draft vessel than for a large-draft.

### Discussion

- What is the distance between the line dolphins?

*Approximately 200 feet.*

- The parking area appears to have 19 lanes, what would that do to the adjacent beach? Does the diagram show parallel parking next to the tollbooths where the taxi line currently exists? Does the taxi line require cutting into the hillside? It appears that there is a left-hand turn lane for west-bound traffic, which is great when compared to the current mile distance vehicles must drive today. What is the plan in this scenario in the event of a long wait, and therefore a long line of cars?

*The holding area size for Option 6 and all scenarios is 200 cars. Holding area size is dependent on frequency of service, not the size of the vessel, so the area has been standardized to 200 cars. In this option, the lane extending west of the terminal currently used as a ferry holding lane is used for extra parking. The entrance to the terminal is via a left hand turn and newly striped lane off SR 20.*

- How will people approach the terminal from Coupeville?

*Vehicles from Coupeville would have to go around through SR 525. The Keystone Terminal approach can only be done from two directions: the current approach from the west via a U-turn, or the proposed new direction with a left hand turn off SR 20. The new suggested approach is from SR 20 in response to complaints received by WSF about people driving past the schools and through town to the terminal. For all Option 6 scenarios, there are approximately 50 extra parking spots, which would run west of the terminal.*

- Do the extra parking spots require cutting into the hillside?

*Yes, there would be a small cut.*

- Is the terminal building the same as today?

*Yes, it would be the same waiting area, however over time it may need to be expanded.*

- WSF would need more than one bathroom for each gender.
- Would the height of the retaining wall be the same as the height of the current jetty?

*It would be the same elevation as the state park stands today.*

- If WSF in-filled behind the retaining wall, would additional beach and land be created?

*Possibly.*

- Has the total determination and size of new state park land been fully developed?

*No.*

- I like this new option [Option 6].
- Would all of the water mass be filled in behind the retaining wall?

*No. A small recreational vessel could fit behind it. The area that would be filled is behind the pink line [in the graphic layouts], so the state park would see their state park expand slightly eastward into the harbor. There is a possibility for a walkway in the newly created area.*

- Would captains still decide the ¼-mile visibility? This visibility determination might imply the same amount of lost trips due to fog, but would allow entrance into the harbor without fear of grounding?

*Correct. WSF could also use a larger vessel. At this time, WSF does not have confirmation from ferry captains of the operational viability of this option. The layout is newly created and not finalized.*

- This CAG process is working, if this new option came out of the last meeting. I like seeing this new option.

## **HARBOR MODEL UPDATE**

---

### ***Dana Moreland, WSF Terminal Engineering***

Dana Moreland gave a brief update of the physical model of Keystone Harbor constructed at the Oregon State University (OSU) Wave Research Laboratory.

The basin of the harbor model is 160 feet by 90 feet, with a “wave-maker” generator, programmed with a piston actuator. To create waves, the pipe pumps water and forces currents parallel to the shore across the jetty like the prevailing current today.

The purpose of the model is to demonstrate the impacts to the underwater environment and shoreline for each of the harbor options. Data from this physical model will be combined with the computer model to show sediment transport, wind, wave, and current effects. The computer model will develop this information over a span of years to demonstrate the effects of the options over time.

## Discussion

- Are all the depths in the harbor model to scale?

*Yes. The entire model is a 1:40 scale of the harbor.*

- Will the model show the effects of jetty types over time?

*Yes.*

- Will all of the 28 harbor/vessel scenarios be evaluated with the harbor model?

*No. All options with jetty types will be evaluated. There are four jetty options: jetty extension with rubble mound, jetty extension with steel pile wall, submerged jetty, and a “dogleg.” The submerged jetty would be underwater, but with a smaller footprint than the existing jetty. The “dogleg” has less cost associated with construction.*

- Could the jetty be moved 25 to 30 degrees to the east?

*Potentially. That is similar to the dogleg being studied.*

- How close is the model to being operational?

*Construction on the model has been completed, and it is currently being calibrated. At this time, the current conditions of Keystone Harbor are being replicated for baseline parameters. Shortly following, the options can be tested.*

## **VESSEL UPDATE: Keystone Special Option and Out-of-Box Option**

---

***Laurens Zuidweg, WSF Vessel Engineering; Duane Liable, Glostén Associates***

Laurens Zuidweg, WSF Vessel Engineering, shared new information regarding the “Out-of-Box” 100 Special option for the harbor analysis. He also addressed the question of additional vehicle capacity on a vessel with the same dimensions as the Steel Electric with a new design. The newly designed “Keystone Special” increases vehicle capacity to 68 vehicles. The layout of the vessel pushes the casing that provides access for all passengers, built to Americans with Disabilities Act (ADA) standards, to the upper deck of the vessel. Additionally, an escape route from the upper deck is added for emergencies.

The Keystone Special design is a radical one. The casing on one side creates an asymmetrical design of the engine room, which is different from all other vessels in the WSF fleet. The design could also prove problematic for WSF Operations. If vehicles load from the opposite side of the casing area first, passengers will be walking from their vehicles across the still-loading lanes of traffic to head to the upper deck. One accommodation might be to keep passengers in their vehicles until the vessel is fully loaded. Those details must be worked out with the WSF Operations Department.

## Discussion

- Are there nine additional vehicles in the same amount of space?

*Yes. The draft will be slightly increased because of the additional cars. At this time, however, funds are not available to do more detailed design confirmation. This stands as a preliminary, radical design.*

The out-of-box vessel broker search sought vessels available in the United States. The search was conducted by sending a data sheet of specifications (e.g. double-ended vessel) for a WSF vessel to all brokers and ferry operators in the United States. WSF did not receive any leads from that search. The lack of leads was not unexpected as WSF vessels must fall under the Jones Act, having been built in the United States and carry a United States flag.

The broker search included contacting Matt Nichols of Whidbey Island Nichols Brothers Ship Builders. On a recommendation from Nichols Brothers, WSF was put in touch with Stuart Valentine, a shipbuilder from Australia for a vessel alternative for Keystone Harbor. WSF discussed the possibility of a catamaran for the route. Catamarans use an effective “over the hump” effect to speed up and travel at a high speed for the length of their sailing. In the case of the Keystone-Port Townsend route, however, the distance needed to go out of the harbor, ramp up to max speed, and lessen speed into the opposite side of the harbor is not lengthy enough for the use of a catamaran. In addition, reaching the maximum speed would be difficult as the vessels travel across shipping traffic lanes.

Despite catamarans’ maneuverability, it seemed there was not a compelling-enough reason to use this design for the Keystone-Port Townsend route. WSF needs a double ender both for entry and exit of the vessel, and below the water line with two props. A one-prop vessel requires a turn to back out of the slip and subsequently turn to move forward toward either terminal. Keystone Harbor does not have enough space to make that turn inside the terminal, and such maneuvers require additional time and fuel.

Duane Liable, Glosten Associates, provided additional out-of-box options for WSF. Duane found two potential vessel propulsion systems that could work in Keystone Harbor after researching vessels around the world.

The first from Finland is a Z-Drive propulsion system. It has under-hull propellers, a right angle drive, and is used in many applications. For a ship of this size, the system would enable the vessel to go anywhere, as it has the capability to maneuver in tight positions. The second propulsion system uses a cycloidal unit, and is widely used in ferries and tugs around the world. Four cycloidal systems, two at each end, would be needed on a vessel using this system. Such a vessel would look similar to any of those seen on Puget Sound today. The system accommodates the current problems posed by Keystone Harbor: shallow draft, maneuverability, and quick response to get out of tight spaces.

The new propulsion systems also have drawbacks. They use more power and fuel than conventional propellers. In addition, Z-drive systems have a “right angle drive,” which is usually deemed “unnatural” by engineering standards. If the vessel (or drive) is damaged, the drive breaks into large, difficult to manage pieces. Repair and maintenance are not easy or inexpensive, however the vessel fulfills the design requirements with a shallow draft to maneuver into Keystone Harbor. A vessel with one of these proposed systems would be a

single-use operation in terms of training, parts, and route. This is contrary to WSF's plan to have standardized equipment and operation in its fleet.

### Discussion

- Can the Z-Drive go at high speeds sideways?

*Tugs with this propulsion system can go approximately six or seven knots sideways.*

- Would the Z-Drive draft be below the hull line, thereby increasing the draft beyond today's level?

*The propulsion system could probably be designed within 13 feet draft for decent power. These systems are used in British Columbia and Europe, and could probably be accommodated here as well.*

- Could this vessel be used on another WSF route?

*Probably not. Generally, ferries are designed to travel approximately 16-17 knots. These vessels would travel slower than the usual 16 knots, which is inefficient for long routes. Another issue is crew training. When a crewmember walks aboard the vessel for a shift, he/she needs the vessel to have the same look and feel as the last vessel. There would be additional operational training, and the fuel consumption would be less efficient, but this vessel could be chosen simply for its maneuverability.*

- Does the "Keystone Special" vessel have high performance rudders?

*Yes. This vessel is designed with high performance rudders. However, it is not the norm to see these types of vessels on Puget Sound.*

- Does the out-of-box propulsion system provide more maneuverability as you come through the mouth of the harbor?

*Yes. Maneuverability and ability to have speed at the entrance to the harbor would be the primary reasons this vessel would be considered.*

- Would the ¼-mile visibility constraints still apply under this scenario for captains?

*Yes.*

- It seems the only thing working against this boat is its interchangeability.

## ENVIRONMENTAL

---

### Bob Swope, CH2M Hill

Penny Mabie explained that for each area of analysis for the harbor report, WSF's analysis was driven by questions posed by WSF and the CAG earlier in the process. For the environmental analysis, these included:

- What are the impacts to habitat and aquatic resources?
- What are the impacts to cultural and historical resources?
- What are the impacts to the state park and recreational users?



Bob Swope, CH2M Hill, explained the environmental analysis that will be incorporated into the Keystone Harbor Report. While the National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) process specifies a list of 15-20 considerations to be taken into account in an official EIS document, due to timeframe and financial constraints for the Keystone report, only four of these areas are being considered:

- Parks and Recreation (in particular the Camp Casey and dive park areas)
- Historic and Cultural Resources
- Aquatic Resources
- Surface and Ground Water Resources

The environmental analysis is designed to help inform each of the harbor scenarios. Research methodology included site reconnaissance with technicians, consultations of existing field data, but no intensive research with field borings.

Criteria to evaluate park and recreation resources included required land acquisition, dredging considerations, replacement of facilities or an access road, and effects on park activities. Park activities include the boat launch, boat parking area, dive park area, and number of campsites.

Evaluation for historic and cultural resources includes identification of previously-undisturbed areas and those potentially containing prehistoric resources. Each option was evaluated with regard to dredging affecting prehistoric resources and by consulting the Washington State Historic Preservation Office in Olympia.

Pile driving, filling, and over-water coverage were also evaluated. Over-water coverage was first believed to be a significant distinguishing factor for each of the scenarios, however the differences proved negligible over the course of the evaluation. Threatened and endangered species will be similarly affected for all scenarios. Permit-ability potential of each option was based on professional judgment, informal discussions with permitting agencies, and knowledge of previous projects similar to Keystone Harbor. Agencies that would permit these scenarios include the United States Corps of Engineers (Corps) and United States Department of Fish and Wildlife (USDFW).

Surface and groundwater research evaluated groundwater recharge. Though there are differences in the amount of impervious surfaces needed for each option, these differences largely are not distinguishable between options. Pile driving and its effect of stirring materials and affecting water quality is also relatively minor as a distinguishing factor between scenarios.

### **Key Findings**

The major factor distinguishing all options from an environmental perspective is the effect on parks and recreation. In all cases for parks and recreation, the “Out-of-Box” 100 Special, Keystone Special, and Steel Electrics had less effects than the Issaquah 100 and Issaquah 130. Dredging is increased for the 100 and 130 vessels to accommodate size, particularly in terms of effects on the campground. For example, 100-2 and 130-2 require dredging two acres of campground. The displacement for 100-5 and 130-5 scenarios would be 22 to 24 campsites

where 34 exist today. However, even the Keystone Special, Steel Electrics, and New Propulsion options take 19 campsites each for Option 5 (West State Park Slip and Terminal).

The parking area where dive park users suit up to dive would be farther away from the water in Option 3 (Harbor Mouth Slip East Side Terminal). This removes the convenience for divers of walking straight to the water. Overall, however, Option 3 offers the greatest opportunity for the parks to consolidate activities. This is an attractive set of options for parks to relocate the boat launch across the harbor to be near the campground on the west side.

Archeologists concurred that there is potential for uncovered historic resources. Greatest effects to cultural resources would occur for options using the presently-undisturbed west side of the harbor.

Option 3 would have the most pile driving at 300 needed piers. All options have between 200 and 300 piers total. Pile driving is a concern for any of the options, as water quality, noise, and vibration effects could be harmful to fish. NOAA Fisheries -- National Marine Fisheries Service (NMFS) and USDFW would need to be consulted, as this is an important issue to both agencies.

New impervious surfaces would be created in Options 3 (Harbor Mouth Slip East Side Terminal), 4 (In Harbor Slip-State Park Terminal), and 5 (West State Park Slip and Terminal), affecting groundwater and surface water resources.

## Discussion

- Would the current deflector or rubble mound jetty extension have the greatest effect on endangered species?

*All options have a similarly high effect on endangered species with little difference between them. This project would require consultation with appropriate agencies such as NMFS due to the effect on species.*

- In Option 4 (In Harbor Slip-State Park Terminal), new impervious surfaces would impact native plants that are not threatened, but are a collection item. It seems WSF would want to keep the impervious surface contained to its current amount.

*The holding area and parking are moved further east in that option, so that would have an effect.*

- Is Ebey's Landing National Historic Reserve evaluated as an impacted resource? I would hope that the visual effect on the landscape could be assessed.

*This effect was not evaluated in this analysis as the entire area of study is contained in Ebey's Landing. In the future if WSF looks outside Ebey's Landing for a ferry terminal, that would be a distinguishing factor, however at this time it was not analyzed.*

There would be a visual distinguishing factor if a new parking lot were created. Option 6 might have a fairly large change with a new parking lot on the east side. Fort Casey is also historic, and effects to the west side of the harbor should take that resource into consideration.

*Perhaps this could be footnoted. All options on the west side of the harbor would be more likely to effect typical historic resources.*

- I like the idea of the matrix with all of the details.

*The environmental effects will be detailed in a matrix included as an appendix to the harbor report, with the actual report written from that information. Much of the detail is still in draft form at this time.*

- It would be nice to see the effect dredging would have on Crockett Lake for any of the options.

*No effects on Crockett Lake are anticipated at this time for any of the options as Keystone Harbor is at a higher elevation than Crockett Lake.*

## **RIDERSHIP**

---

### ***Celine Gihring, WSF Planning***

Penny Mabie presented the questions posed for ridership analysis for the Keystone Harbor study:

- What is the service plan for the route over the next 20 years?
- What type of vehicle ridership needs to be considered?
- What are the characteristics of travelers (I.E. commercial, commuter, tourists)?
- How is ridership affected by whether Whidbey NAS remains open?

Celine Gihring, WSF Planning Services, addressed ridership on the Keystone-Port Townsend route. The Keystone-Port Townsend route carries 3.2% of the entire WSF system ridership. While other routes have decreased their ridership, Keystone-Port Townsend has stayed relatively steady. The Keystone route has the lowest percentage of passengers with frequent user coupons in the system, and the route shows the greatest deal of seasonal variation. 6% of the total ridership on the route is oversized recreational or commercial vehicles, which is the highest percentage of all routes, and double the system average. Work or business-related trips increased from 27% to 38% from 1992 to 1999 during the P.M. traveling period. The next survey for comparison will be completed in two years.

The current service plan for the Keystone-Port Townsend route through 2015 was based on WSF's previous decision to use 130-class vessels. This plan will be updated if that decision is amended following the Keystone Harbor Study. The timing and sequence to add capacity for future growth on the route is part of an overall system-wide investment strategy currently in development.

WSF uses a travel-planning model to project and plan schedules and accommodate capacity on all of its routes. The model takes into account periodic origin and destination travel surveys, data from regional transportation planning databases, population and employment growth based on regional plans, and translates that information into travel demand. Travel demand determines any changes in the type and level of ferry service.

## Discussion

- Today fuel prices are at an all time high. Is it possible to take changing prices into account in the ridership models? It seems people are now thinking about the expense of travel, which includes amount of gasoline used. Wouldn't this potentially change ridership forecasts?

*The model has the ability to incorporate fuel prices as a cost of travel. The raised fuel prices have not been incorporated into the model; WSF does not run the model daily as the market fluctuates due to the expense. WSF is therefore one step behind the regional model. With fuel surpassing \$50 a barrel, WSF will need to adjust the model to accommodate the prices. We are observing that more people are opting for transit in Shohomish County and Everett. These movements can be taken into account, but catastrophic effects, such as Boeing leaving town, cannot readily be taken into account on the model.*

- Two factors affecting ridership are service frequency and vehicle carrying size. Will it make a difference if a 100- or 130-car vessel is used?

*The size of vessel makes a difference when the route is at capacity. If the boat is filled, there will be delays. However, if no cars are left at the dock, there is no effect.*

- How often are people left waiting at the dock and for how long? During the summer people wait two boats for their turn. It would be helpful to see the difference in the frequency of boat waits with a smaller versus a larger vessel.

*WSF Operations may have some statistics taken for overruns/overloads, and we can look into that. The current ferry model relates to a typical month and a typical work day. We could do a run using peak day data.*

- It would be helpful to see the peaks to know the range of variation.

*That would be a separate look at the route dynamics. We will bring that information to a future meeting.*

- What size vessel will be needed to accommodate the capacity in 2030 of 1,326,000?

*This is a baseline and assumes the 130-car ferry, but not the variation.*

- It would be helpful to see the peak demand on the route illustrated to make note of the worst-case scenarios, even if it is raw data, for every 45 minutes, 90 minutes, etc. The CAG should know the effect if peak demand cannot be met.

## THROUGHPUT

---

**Doug Playter, CH2M Hill**

Penny Mabie pointed out the questions posed by WSF and the CAG regarding throughput:

- What are the throughput considerations for potential vessel types?

Doug Playter, CH2M Hill, talked about throughput considerations for the Keystone-Port Townsend route through 2030 [see 9/30 Keystone CAG Presentation]. The baseline level of service to accommodate vehicle capacity in both directions of the Keystone-Port Townsend route for 2003 includes 22 weeks of service in the high or peak season, and 30 weeks of service in the low season. That level of service is kept consistent throughout the analysis. It shows one versus two boats, as well as an annual carrying capacity of 520,380 over the entire year.

The 2030 projections were based on an expected 55% growth rate between now and 2030. Therefore, each of the vessel options' hours of operation and size were based on traffic being increased 50-60%. This calculated the increased percent capacity for each vessel type. For instance, the Steel Electrics, in 2030, would need 40 sailings per day in the high season, which is equivalent to two boats running all day. The low season would need 1.5 boats running all day. Likewise, 130-class vessels would necessitate one boat with a frequency of every 90 minutes, and the Sealth 100-class would have different hours but 1.5 boats. The Keystone Special would require two boats during the high season, but one during the low season. The "Out-of-Box" 100 Special vessels would have 1.5 vessels in the summer, and one full vessel all day during the winter. The number of vessels required on the route is a function of adjusting the operating hours to get the throughput needed with forecasting.

### Discussion

- Does this chart show vehicle trips as opposed to passenger trips?

*Yes. Usually there is plenty of passenger capacity on the vessels, while vehicle capacity is filled.*

- Could we see this information as daily rates?

*Yes.*

- The 130-class vessels are the only ones with the end result of a frequency of every 90 minutes rather than every 45 minutes. In that case, service feels less even though capacity is increased.

*After 2030, projected vehicle ridership rates would rise, requiring an additional boat. Frequency levels then would be the same as today to accommodate ridership.*

## COSTS AND IMPACTS

---

**Mike Thorne, WSF CEO; Bill Greene, WSF Planning**

Penny Mabie showed the questions related to costs and impacts of the Keystone Route on a system-wide level:

- What impact does keeping the Steel Electrics in service have on the rest of the WSF system?
- What are the operational costs of existing vessels (by route) and the system-wide impacts?
- What are the system-wide impacts of new vessels?
- If new vessels are smaller, how can they be used elsewhere?

- How will new vessels be interchangeable between routes (if only two vessels exist when one goes down, there is only one left)?
- What are the preservation and maintenance costs per year?
- What are the operational costs of existing vessels?
- What is the revenue potential of existing vessels?

Mike Thorne, WSF CEO, introduced himself and said he would be speaking about the system-wide costs for the Keystone route. Cost numbers of the route are not as meaningful as one might hope given the fact that 2004 dollars are not the same as prices 60 years from now. These projections therefore carry that caveat.

Overall, higher-than-anticipated ridership has been observed on WSF routes in the face of rising fuel costs. More individuals use vehicles and the greater gain from a revenue perspective for the WSF system is from vehicle tickets. WSF's assumption is that less people walk-on than drive on the ferry.

WSF's aim overall was to replace an aging fleet; this could not be paid for solely with public money. WSF looked to leverage capital performance to finance updating the aging fleet. The CAG offers WSF the opportunity to look at different options, but ultimately it will be a challenge to pay for any chosen option.

Keeping the Steel Electrics or building a Keystone Special does not ensure route reliability and interchangeability, and keeping the Steel Electrics creates high preservation costs. The investment required for the Steel Electrics may not be wise from the perspective of a complete rebuild as it uses excess capital as well as preservation funds. WSF is going to attempt to quantify those numbers.

Vessels are currently being designed with the goal of interchangeability in mind. Steps opposing standardization will cost the system. One of the opportunities WSF has at this time is to create an inventory of parts, the idea being that vessels carry approximately 20 tons of parts each. Interchangeability allows the cost of that weight to be brought down, but it is difficult to quantify that savings.

Interchangeability also offers efficiencies from a labor point of view. Currently, if WSF were to replace crews with temporary help for one day and bring all vessel employees in for training, it would cost about \$600,000. New vessels offer interchangeability so that crews can be interchanged without extra training. This is part of the goal of standardization.

The utility of new, Keystone-specific vessels is also a consideration. There is a possibility that the San Juan Inter-Island or Point Defiance-Tahlequah route could use a Keystone-specific vessel. The reliability question originates in the fact that if you have two boats for the peak season, the system actually would need a total of three boats for back-up. Service may not be reliable with only two due to necessary maintenance.

Bill Greene, WSF Planning, talked about specific costs related to vessel preservation. For this project WSF is forecasting costs over a 30-year span. In addition, throughput and ridership of a

route are based on a two-hour wait maximum before extra service is added (as either an additional vessel or larger vessel). Prices are influenced by environmental and market considerations such as: steel prices, fuel prices, and the risks of construction. Currently WSF's Planning Department is developing an in-depth, sophisticated risk package process to give a range of prices for any project. This pricing package is being used throughout Washington State on transportation projects and is known as the Cost Estimate Validation Process (CEVP), which identifies and quantifies construction risks that can impact a project's budget and/or schedule.

Costs presented at this meeting have not been brought to the level of detail and analysis of CEVP. In addition, all prices are currently expressed in 2004 dollars, which may or may not be the real cost.

The total cost of any project is equal to the sum of capital (initial one time), vessel construction, and system preservation costs. The life cycle cost analysis, or overall price of preservation, is made up of the total preservation costs of each system and structure; there are several thousand systems in each vessel and terminal. Each vessel has spikes in preservation costs at given points in the life cycle, as seen in the slide of the M/V Wenatchee [See 9/30 CAG Meeting Presentation]. When the vessel was delivered in 1999, future expenditures were projected; similarly, a house requires painting or a new roof periodically. If WSF preserves the boat correctly over time, this incremental preservation strategy will be \$40-50 million.

Costs are made up of labor personnel (mandated by the United States Coast Guard), fuel assumptions, and the operational costs associated with carrying 20 tons of parts by each vessel. [See Costs and Impacts Analysis Handout for details] Overall, the amount of money required to keep the Steel Electrics running would be 1.5 times as expensive as building a new vessel.

### Discussion

- The Issaquah 130 vessel looks like it would cost the least to build. What would be the cost of building another dock outside the harbor that did not require extensions, movement of parks, and so on? What is the cost comparison to these costs?

*That premise is what got WSF here today. There was an initial capital cost of \$30-40 million for a terminal, not including preservation costs. WSF has that money budgeted.*

- It seems there is a lot of work to make Keystone Harbor work, when some think it is the least desirable option.

*There is currently a placeholder in WSF's budget for \$48 million to pay for Keystone-Pt. Townsend route improvements. These funds have not been appropriated by the Legislature.*

- Could we see just the capital costs compared with the capital costs for each terminal? This will allow the CAG to see the amount of money needed to keep the aging vessels going.

*Yes. It is safe to say at this point that WSF could build something outside the harbor for less than in the harbor.*

- What does WSF think about developing a selling point for each of the ferries based on customization and the uniqueness of the individual route experiences, rather than standardization? Is there an advantage to doing this and could this approach balance costs? One way to accomplish this would be customization of food service on different routes or boats.

*We are moving to some food service customization due to forces beyond our control, although we believe standardized food service would, in theory, be more cost-effective. A comparison between food service and fleets is a bit difficult to make. WSF is currently trying to stay in business into the future – but has an aging fleet. When you look to other transportation systems, standardization seems logical. For instance, Southwest Airlines has one plane that does the job for all flights. Admittedly, ferries are not that simple. WSF did believe, and moved on the premise, that standardization would help. The CAG will help validate those assumptions.*

## **CAG ROLE IN FINAL REPORT**

---

### ***Penny Mabie, EnviroIssues***

Penny Mabie began a discussion on the structure and contents of the final report for the Keystone Harbor Study. WSF currently thinks that, at a minimum, the report would include:

- Cover letter from Acting CEO
- CAG letter of their perspective of the process
- The rollup, perhaps a matrix, of all studies
- Technical appendices with all study details

WSF anticipates including all public comments, CAG meeting agendas and summaries, so that the document shows the depth and breadth of the overall process. An outline of the report is in development. Penny asked the CAG for feedback.

### **Discussion**

- So far the group has worked as four individuals, not as a whole. Is there time in the process for the CAG to come together for a conclusion?

*There has been no confirmation or conclusion to date that the CAG would necessarily reach a recommendation. The report would capture the CAG's guidance and process through the study, and hopes the CAG will help ensure the report is organized in such a way that its information is useful.*

- WSF staff has simply handed the scenarios to the CAG. Perhaps at the last meeting the group could talk and have a recommendation, as a sound-off to the WSF staff to finish the process.
- Each individual CAG member expressed concerns for some of the option designs. Many of these scenarios may not work year after year in a real, operational setting. A number of them may not work year round. There are issues of taking the campground from state park users.



- A slip position outside the existing breakwater will not work as it is a rough spot with currents.
- Will those nuances be laid out when the harbor analysis is done?

*It may be that not all 28 options are on the table once those analyses are completed. At this point, all are being carried through, but as study results are completed, some informed choices may be made.*

- What will happen at the next two meetings?

*The next meeting will get into traffic, safety concerns, any more information on system costs, and harbor modeling results to date on the harbor model at OSU. Modeling will help inform the constraints the captain is concerned about. Between meetings, a flow of data is occurring; at the October 13 meeting, some data will be shared as it is completed, and at the October 28 meeting, the roll up will occur. Between both of those meetings, WSF will put all information together, and the CAG will evaluate it. All data is being developed fast and furious. All information will come together at the end of the process.*

Whether or not the CAG has a recommendation for the Legislative Transportation Commission, it would be good to show the CAG's overall participation individually. It is validation and proof of us being here.

*It may not be possible to know if the CAG has opinions until October 28.*

- Would it be possible for the CAG to meet again when the report is on its way?

*The next two meetings will be critical to see the rest of the pieces as they come into fruition. On October 28, everyone will understand the big picture. At that time, the CAG can give input as to the questions that remain unanswered.*

## **PORT TOWNSEND PROJECT UPDATE**

### ***Dana Moreland, WSF Terminal Engineering***

Dana Moreland gave a brief update on the Port Townsend preservation project. The landing structures at Port Townsend are in poor condition, with one slip swaying with the tide. A maintenance project is currently planned to repair the Slip 2 wing walls in the short-term, and in the long-term, WSF is looking at a preservation project to address some environmental concerns, traffic, and operational issues.

#### **Discussion**

- What is the work being done right now?

*Maintenance work is currently being done to repair and replace the wingwalls with steel "wing dolphins."*

- What are the costs of the short-term repairs?

*WSF will have to get back to you.*

- What will be the timeline for either terminal to be shut down if any of the suggested new options are to be built?

*Closures will depend on the option chosen. It can be forecasted fairly quickly, but must take into account the windows of opportunity due to spawning and eelgrass. The modeling will help to understand how many vessel cancellations there will be for all scenarios. This sophisticated modeling will compare cancellation rates to the current 100 cancellations per year.*

## **PUBLIC COMMENT**

---

### **Public Comment #1: Scott Landis**

I'm from Port Townsend, and I was just made aware of this project in the last month. I wanted to go on record by saying that I am opposed to any option that encourages more cars in our town. I am a business owner in downtown Port Townsend. I think the government should encourage less growth. I am glad fuel prices are going up – why would we want to have an Issaquah 130 when we have all of these other additional costs? If we need three ferries to take care of a two-vessel route, we probably will really need four terminals. We can see the opposite terminal from either side of the route. Carrying 20 tons of equipment around in each vessel seems inefficient.

### **Public Comment #2: Ken Dickey**

I see a lot of work going on analyzing these options—I thank you for it. For a small type of vessel, I would like to see the difference between, and see annotated, the numbers' squishiness—i.e. if the price of the vessel is \$10 million plus or minus a given percentage, that may be plus another \$10 million. I would also particularly like to see costs for both sides of the route.

### **Public Comment #3: Robin Adams**

I thought this was an interesting meeting – it has some good information, and I appreciate everyone's work. On ridership—the level of ridership today is effectively the same we have had the last eight years, and it may or may not be going up—but it is consistent for peak season, which is when the route is most necessary. We cannot have less than one boat. You cannot get 513,000 people on one 130-class ferry. If ridership goes appreciably up, the route will need another 130. The information on throughput is misleading. The 130-class vessel does not offer 182% capacity when we need it because the 65-car is the same as 130-car every 45 or 90 minutes, respectively.

On the costing, I would like to make the point that the difference between the highest and the lowest of these options is about \$11 million—with an overall sum of close to a half-billion dollars. Taking everything into account, we don't know if the highest price of the scenarios really is the highest or within an \$11 million difference. Existing conditions have the lowest environmental impact and highest frequency of service, with smallest vessels. It is clear to me that we need to have small vessels.

**Public Comment #4: Brian Martin**

Thanks to Mike Thorne, for coming into this area – I hope your successor will come as well. Nancy, thanks for Crockett Lake issue as well. I am concerned that if the corrosion material deteriorates and has to be replaced at the pipe connecting Crockett Lake, there will be more costs. Also, the mechanical tide gate should be taken into account because it must be maintained. There was a Superior Court decision in Skagit County for maintaining tide gate. How will this be done? The environmental effect of the water going in and out, especially if more is going in and out with the rush of it, should also be taken into account.